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Pulpwood Production in the North-Central Region by County, 1985

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HIGHLIGHTS

Lake States

Pulpwood production fell 5 percent to 6.84 million cords in 1985. Hardwood pulpwood output (production) dropped 287 thousand cords and softwood output declined 61 thousand cords. Eight percent of the total production was whole-tree chips; aspen remained the preferred species. Production of pulpwood fell 8 percent for pulp mills and rose 5 percent for flakeboard mills. Output of pulpwood declined 13 percent in Minnesota, 2 percent in Wisconsin, and 1 percent in Michigan. For the third consecutive year, the Michigan aspen harvest reached a new high. Similarly, the Wisconsin aspen harvest climbed to a third consecutive record. In Minnesota, 3 out of every 4 cords of roundwood cut were aspen.

Softwood residue imports to the Lake States from other States (primarily South Dakota and Wyoming) were 125 thousand cords. Twenty-one percent of Wisconsin's pulpwood requirements came from out of State. Michigan and Minnesota each received less than 5 percent of their pulpwood from out of State.

Central States

Central States pulpwood production rose 2 percent to 402 thousand cords. Output rose in Indiana and Missouri but fell in Illinois and Iowa. Seventy-two out of every 100 cords were residue from wood-using mills. Indiana accounted for 56 percent of the output. Two-thirds of the Central States output was exported to five adjacent States.

Pulpwood receipts inched up to 136 thousand cords. Only 3 thousand cords were imported.

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PULPWOOD PRODUCTION IN THE NORTH CENTRAL REGION BY COUNTY, 1985

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Pulpwood constitutes more than half the industrial timber products harvested annually in the Lake States (Michigan, Minnesota, and Wisconsin) and is an important product in the Central States (Illinois, Indiana, Iowa, and Missouri).

Current detailed information about pulpwood production[1] is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Also, scientists need current pulpwood information to plan research projects.

Since 1979, we have included logs, bolts, and wood residue used in manufacturing particleboard, waferboard, oriented strand board, and medium density fiberboard in this annual report. Together, these products are called flakeboards. Wood used at flakeboard mills is identical or nearly identical to wood used at pulp mills.

Because flakeboard mills use primarily aspen and wood residue, including them does not distort roundwood use trends for other species nor preclude comparing survey results with 1978 and previous years.

Pulp and flakeboard mills using North Central States timber in 1985 reported their pulpwood receipts[2] by species groups and counties of origin. This report presents the results of the survey, analyzes the data where appropriate, compares results with 1984 or earlier years, and discusses trends in pulpwood production and use.

The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States (more detailed data on pulpwood production and receipts in the Central States would reveal the operations of individual mills). This is the 27th annual report of the pulpwood harvest in Lake States counties and the 26th annual report of the Central States harvest.

Several mills buy their pulpwood in green tons rather than in cords. Conversion factors used in the Lake States to convert green tons of pulpwood to standard cord equivalents are shown in the Appendix. Conversion factors used in the Central States are shown in footnote 1 of table 4.

Pulpwood production in Minnesota is completely and accurately shown. However, to prevent disclosure of confidential information about softwood pulpwood use by individual companies, the total quantity of softwood pulpwood imports and exports between Minnesota and Canada is not reported. *Thus, some Minnesota softwood shipped to Canada is shown as remaining and used in Minnesota, and receipts of Canadian softwood in Minnesota are understated.*

LAKE STATES

Production

Pulpwood production dropped from a record 7.19 million cords[3] in 1984 to 6.84 million cords in 1985, a decline of 5 percent (table 1). Of each 100 cords produced, 92 cords were roundwood (including chips from roundwood); the remainder was residue from wood-using plants.[4]

[1] *Pulpwood production, determined from mill receipts, is the annual volume of pulpwood cut in a specific county or region, plus the annual wood residue volume produced by sawmills, veneer mills, etc., in a specific State or region, that was used for pulp, particleboard, waferboard, oriented strand board, or medium density fiberboard.*

[2] *Pulpwood receipts are the volume of wood received by mills in a specific State or region, regardless of the geographic source.*

[3] *All references to cords are in standard cords. A standard cord is 128 cubic feet of wood, bark, and air space.*

[4] *Residue is the byproduct from sawmills, veneer mills, cooperage mills, and other wood-using mills that is used for pulping and flakeboard. Residue includes slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from slabs, edgings, and veneer cores.*

Table 1.--Production and imports of pulpwood, Lake States, 1985

(In standard cords, unpeeled)

Species and destination	Production by States[1]				Imports			Total receipts
	Michigan	Minnesota	Wisconsin	Regional total	Other U.S.[2]	Canada	Total imports	
Cedar								
Michigan	49,070	--	--	49,070	--	--	--	49,070
Total	49,070	--	--	49,070	--	--	--	49,070
Balsam fir								
Michigan	62,909	--	940	63,849	--	--	--	63,849
Minnesota	--	105,390	152	105,542	--	173	173	105,715
Wisconsin	25,133	906	70,668	96,707	--	--	--	96,707
Exported [3]	4,795	15,563	--	20,358	--	--	--	--
Total	92,837	121,859	71,760	286,456	--	173	173	266,271
Hemlock								
Michigan	32,633	--	1,115	33,748	--	--	--	33,748
Wisconsin	4,104	--	35,513	39,617	--	--	--	39,617
Total	36,737	--	36,628	73,365	--	--	--	73,365
Jack pine								
Michigan	192,275	--	339	192,614	--	--	--	192,614
Minnesota	--	91,451	9,070	100,521	--	--	--	100,521
Wisconsin	43,232	7,995	207,576	258,803	1,851[4]	--	1,851[4]	260,654
Exported [3]	--	7,497	--	7,497	--	--	--	--
Total	235,507	106,943	216,985	559,435	1,851[4]	--	1,851[4]	553,789
Red pine								
Michigan	45,295	--	339	45,634	--	--	--	45,634
Minnesota	--	23,632	6,927	30,559	--	--	--	30,559
Wisconsin	6,018	3,798	205,575	215,391	--	--	--	215,391
Total	51,313	27,430	212,841	291,584	--	--	--	291,584
White pine								
Michigan	25,220	--	--	25,220	--	--	--	25,220
Minnesota	--	2,966	504	3,470	--	--	--	3,470
Wisconsin	2,669	10	21,225	23,904	--	--	--	23,904
Total	27,889	2,976	21,729	52,594	--	--	--	52,594
Spruce								
Michigan	56,603	--	335	56,938	--	--	--	56,938
Minnesota	--	75,720	--	75,720	--	1,339	1,339	77,059
Wisconsin	20,144	23,631	36,088	79,863	--	--	--	79,863
Exported [3]	7,145	11,597	--	18,742	--	--	--	--
Total	83,892	110,948	36,423	231,263	--	1,339	1,339	213,860
Tamarack								
Michigan	3,202	--	--	3,202	--	--	--	3,202
Minnesota	--	7,285	--	7,285	--	--	--	7,285
Wisconsin	529	1,763	1,591	3,883	--	--	--	3,883
Total	3,731	9,048	1,591	14,370	--	--	--	14,370
Ash								
Michigan	11,092	--	678	11,770	--	--	--	11,770
Wisconsin	4,786	201	43,935	48,922	--	--	--	48,922
Total	15,878	201	44,613	60,692	--	--	--	60,692
Aspen								
Michigan	804,732	--	14,716	819,448	--	--	--	819,448
Minnesota	--	1,280,204	39,836	1,320,040	--	--	--	1,320,040
Wisconsin	172,179	59,270	1,018,485	1,249,934	--	--	--	1,249,934
Exported [3]	--	21,734	--	21,734	--	--	--	--
Total	976,911	1,361,208	1,073,037	3,411,156	--	--	--	3,389,422
Balsam poplar								
Michigan	31,881	--	--	31,881	--	--	--	31,881
Minnesota	--	47,112	2,234	49,346	--	--	--	49,346
Wisconsin	1,557	--	1,760	3,317	--	--	--	3,317
Total	33,438	47,112	3,994	84,544	--	--	--	84,544
Basswood								
Michigan	24,180	--	474	24,654	--	--	--	24,654
Wisconsin	653	--	12,109	12,762	--	--	--	12,762
Total	24,833	--	12,583	37,416	--	--	--	37,416
Beech								
Michigan	22,156	--	158	22,314	--	--	--	22,314
Wisconsin	2,416	--	1,823	4,239	--	--	--	4,239
Total	24,572	--	1,981	26,553	--	--	--	26,553
White birch								
Michigan	70,850	--	5,362	76,212	--	--	--	76,212
Wisconsin	5,523	1,504	165,280	172,307	--	--	--	172,307
Total	76,373	1,504	170,642	248,519	--	--	--	248,519

(Table 1 continued on next page)

(Table 1 continued)

Species and destination	Production by States[1/]				Imports			
	Michigan	Minnesota	Wisconsin	Regional total	Other U.S.[2/]	Canada	Total imports	Total receipts
Yellow birch								
Michigan	25,572	--	957	26,529	--	--	--	26,529
Wisconsin	7,949	--	21,508	29,457	--	--	--	29,457
Total	33,521	--	22,465	55,986	--	--	--	55,986
Cottonwood								
Michigan	622	--	--	622	--	--	--	622
Total	622	--	--	622	--	--	--	622
Elm								
Michigan	15,053	--	782	15,835	--	--	--	15,835
Wisconsin	20,763	146	50,190	71,099	--	--	--	71,099
Total	35,816	146	50,972	86,934	--	--	--	86,934
Hickory								
Michigan	810	--	--	810	--	--	--	810
Total	810	--	--	810	--	--	--	810
Hard maple								
Michigan	92,249	--	6,425	98,674	--	--	--	98,674
Wisconsin	32,007	294	148,684	180,985	--	--	--	180,985
Total	124,256	294	155,109	279,659	--	--	--	279,659
Soft maple								
Michigan	113,144	--	6,145	119,289	--	--	--	119,289
Wisconsin	12,466	149	103,233	115,848	--	--	--	115,848
Total	125,610	149	109,378	235,137	--	--	--	235,137
Red oak								
Michigan	115,533	--	1,060	116,593	--	--	--	116,593
Wisconsin	1,617	--	33,819	35,436	--	--	--	35,436
Total	117,150	--	34,879	152,029	--	--	--	152,029
White oak								
Michigan	31,959	--	--	31,959	--	--	--	31,959
Wisconsin	44	--	11,290	11,334	--	--	--	11,334
Total	32,003	--	11,290	43,293	--	--	--	43,293
Other hardwoods								
Michigan	5,989	--	491	6,480	--	--	--	6,480
Wisconsin	3,888	--	6,024	9,912	--	--	--	9,912
Total	9,877	--	6,515	16,392	--	--	--	16,392
Total roundwood								
Michigan	1,833,029	--	40,316	1,873,345	--	--	--	1,873,345
Minnesota	--	1,633,760	58,723	1,692,483	--	1,512	1,512	1,693,995
Wisconsin	367,677	99,667	2,196,376	2,663,720	1,851	--	1,851	2,665,571
Exported 3/	11,940	56,391	--	68,331	--	--	--	--
Total	2,212,646	1,789,818	2,295,415	6,297,879	1,851	1,512	3,363	6,232,911
Residue, softwoods								
Michigan	15,482	--	205	15,687	--	3,986	3,986	19,673
Minnesota	--	38,967	--	38,967	--	--	--	38,967
Wisconsin	1,823	5,339	50,579	57,741	125,172	15,511	140,683	198,424
Exported 3/	--	2,651	--	2,651	--	--	--	--
Total	17,305	46,957	50,784	115,046	125,172	19,497	144,669	257,064
Residue, hardwoods								
Michigan	123,982	--	23,524	147,506	17,113	15	17,128	164,634
Minnesota	--	41,539	--	41,539	--	--	--	41,539
Wisconsin	22,008	56	217,634	239,698	--	--	--	239,698
Exported 3/	--	1,547	435	1,982	--	--	--	--
Total	145,990	43,142	241,593	430,725	17,113	15	17,128	445,871
All wood material								
Michigan	1,972,493	--	64,045	2,036,538	17,113	4,001	21,114	2,057,652
Minnesota	--	1,714,266	58,723	1,772,989	--	1,512	1,512	1,774,501
Wisconsin	391,508	105,062	2,464,589	2,961,159	127,023	15,511	142,534	3,103,693
Exported 3/	11,940	60,589	435	72,964	--	--	--	--
Total	2,375,941	1,879,917	2,587,792	6,843,650	144,136	21,024	165,160	6,935,846

1/Vertical columns of figures under the box heading "Production by States", present the amount of pulpwood cut in each State.

2/Mostly western States.

3/Pulpwood shipped to mills outside of region.

4/Ponderosa pine.

Major species harvested were aspen (3,411,000 cords), jack pine (559,000 cords), red pine (292,000 cords), balsam fir (286,000 cords), and hard maple (280,000 cords). Other primary species, each furnishing more than 200,000 cords, were white birch, soft maple, and spruce.

Hardwood pulpwood production fell 287 thousand cords from a peak in 1984. Hardwood output from roundwood declined 257 thousand cords and output from hardwood mill residue dropped 30 thousand cords. Aspen declined the most in hardwood volume followed by white birch, elm, hard maple, and balsam poplar.

Softwood production declined by 61 thousand cords; all but 2 thousand cords of the decline was in roundwood. Declines were concentrated in red pine, balsam fir, and white pine. Cedar bucked the trend with a 35 thousand cord gain and a record harvest.

Lake States loggers produced 573 thousand cords of whole-tree chips[5] (WTC), up 5 percent from 1984. WTC accounted for 8 percent of the Lake States pulpwood output. About 1 out of 5 cords produced in Michigan was WTC. Minnesota WTC output plunged to less than one-half the 1984 level due substantially to the partial closure of a mill complex. Wisconsin WTC production rose but remained nominal. Production of WTC by species group and State was:

State	Softwoods	Aspen	Other hardwoods
	(Thousand cords)		
Michigan	85	262	145
Minnesota	--	45	--
Wisconsin	--	31	5

Michigan.—Aspen output reached a new high for the third consecutive year. Nearly three-fifths of the aspen was cut in the Northern Lower Peninsula. Overall pulpwood production sagged 1 percent to 2.38 million cords. Pine harvesting was higher than in any year since the peak in 1979. Marquette, Delta, Iron, Menominee, and Dickinson Counties were the leading roundwood producers.

Minnesota.—Minnesota's production plunged 13 percent to 1.88 million cords after 3 record setting years. Three out of four cords of roundwood were aspen; the aspen harvest fell 11 percent. The pine pulpwood harvest was the lowest recorded and the spruce harvest was the lowest recorded except for 1983. Five counties—St. Louis, Itasca, Koochiching, Beltrami, and Cass—furnished 68 percent of the roundwood.

[5]*Pulpwood produced from chipping entire trees (all portions of trees above ground, except the stumps).*

Wisconsin.—Wisconsin producers supplied 2.59 million cords of pulpwood, down 2 percent from 1984. The aspen harvest rose slightly, setting a third consecutive record above 1 million cords. Gains and losses were small for each major pulpwood species group. Top-producing counties were Bayfield, Oneida, Marinette, Douglas, and Forest.

In this report, we show the distribution of the harvest in two ways: first, the amount of pulpwood cut relative to the growing-stock volume in each of five major pulpwood species (fig. 1); and, second, the amount of pulpwood cut relative to commercial forest area (fig. 2). The cross-hatched counties in figure 2 produce 150 cords or more per 1,000 acres, rather than 100 cords or more per 1,000 acres as in previous years. For the major supply areas, pulpwood harvesting was most intensive for jack pine in the Northeastern Wisconsin and Western Upper Peninsula of Michigan Survey Units; for red pine in the Central Unit of Wisconsin; for spruce in the Northern Pine Unit of Minnesota and the Northeastern Wisconsin Unit; for balsam fir in the Northeastern Wisconsin Unit; and for aspen in the Northeastern and Northwestern Wisconsin Units, the Northern Pine Unit of Minnesota, and the Northern Lower Peninsula Unit of Michigan.

More than 200 cords of pulpwood were harvested per thousand acres of stocked commercial forest land in the following counties:

Michigan	Minnesota	Wisconsin
Iron	Clearwater	Douglas
Dickinson	Itasca	Bayfield
Menominee	Hubbard	Washburn
Delta		Vilas
Montmorency		Oneida
Mason		Forest
Lake		Florence
Clare		Menominee
Mecosta		Marinette
Isabella		Langlade
		Lincoln
		Taylor

Receipts

Thirty-seven pulp and eleven flakeboard mills received 6.94 million cords of pulpwood in 1985, off 4 percent from 1984. Forty-four of 48 operating mills used aspen, 19 used maple, and 18 used birch (table 2).

Each Lake State furnishes many mills with pulpwood, including mills outside the region. During 1985 Wisconsin supplied 28 mills, Michigan supplied 27 mills, and Minnesota supplied 25 mills.

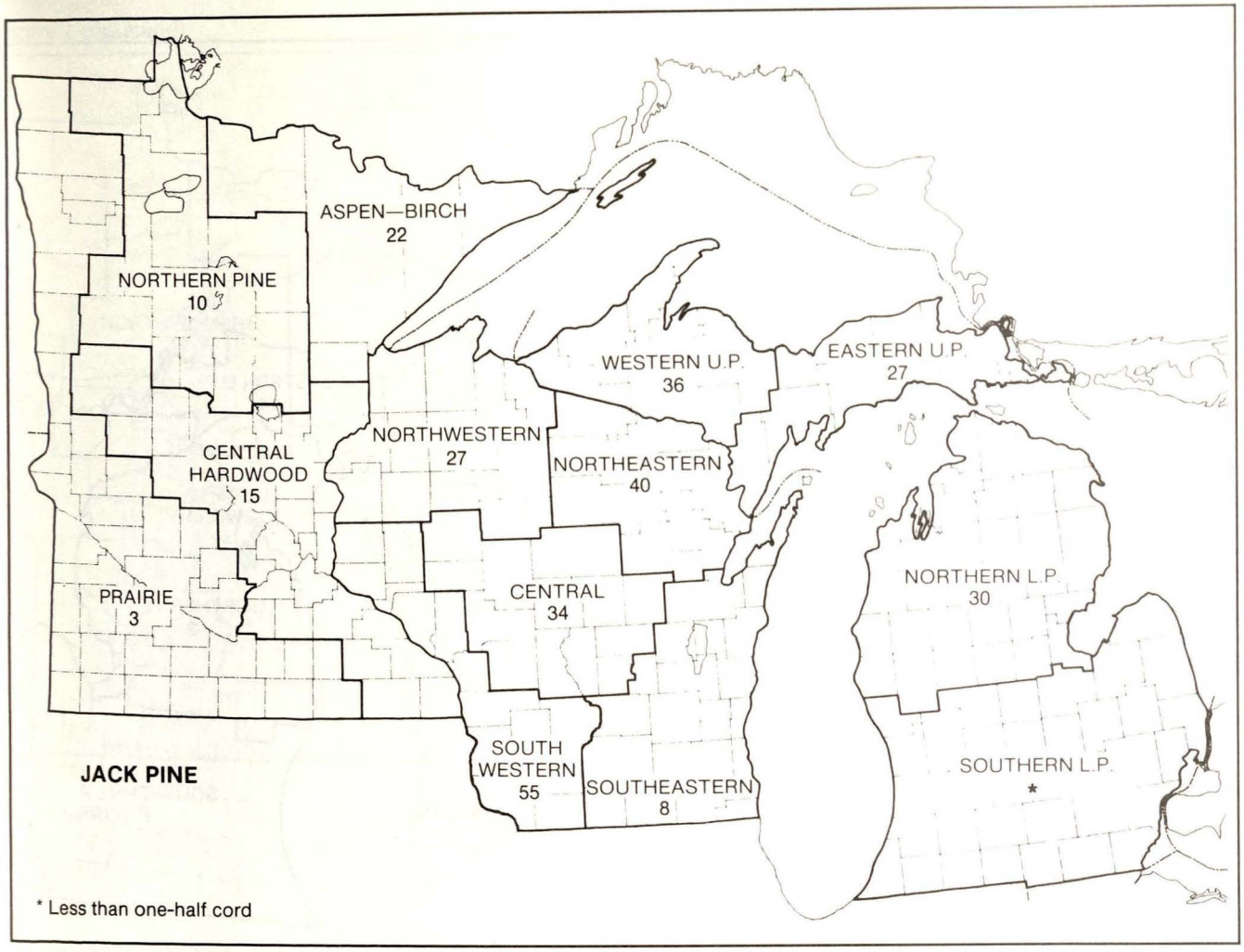


Figure 1.—*Cords of roundwood pulpwood (including chips from roundwood) harvested per 1,000 cords of merchantable volume for each of five principal pulpwood species by Forest Survey Unit, 1985. Merchantable volume was determined during the last forest inventory in each State.*

After falling for 4 consecutive years, softwood residue imports from Canada increased in 1985 to 19 thousand cords. These Canadian imports peaked in 1980 at 91 thousand cords after eight successive annual gains. Softwood residue shipments to the Lake States from other areas of the United States dipped slightly to 125 thousand cords; South Dakota and Wyoming were the principal suppliers.

Michigan.—Out-of-State sources supplied only 4 percent of the 2.06 million cords of pulpwood received in Michigan. Hardwood mill residue was the chief import. Receipts of roundwood were highest for aspen, jack pine, soft maple, and red oak.

Wisconsin.—Twenty-one percent of the 3.10 million cords received at 24 Wisconsin mills came from out-of-State. Michigan furnished 391 thousand cords, Minnesota 105 thousand cords, other (primarily western) States 127 thousand cords, and Canada 16 thousand cords. Principal imports were aspen, softwood mill residue, jack pine, and spruce. Wisconsin mills imported three-fourths of their softwood residue.

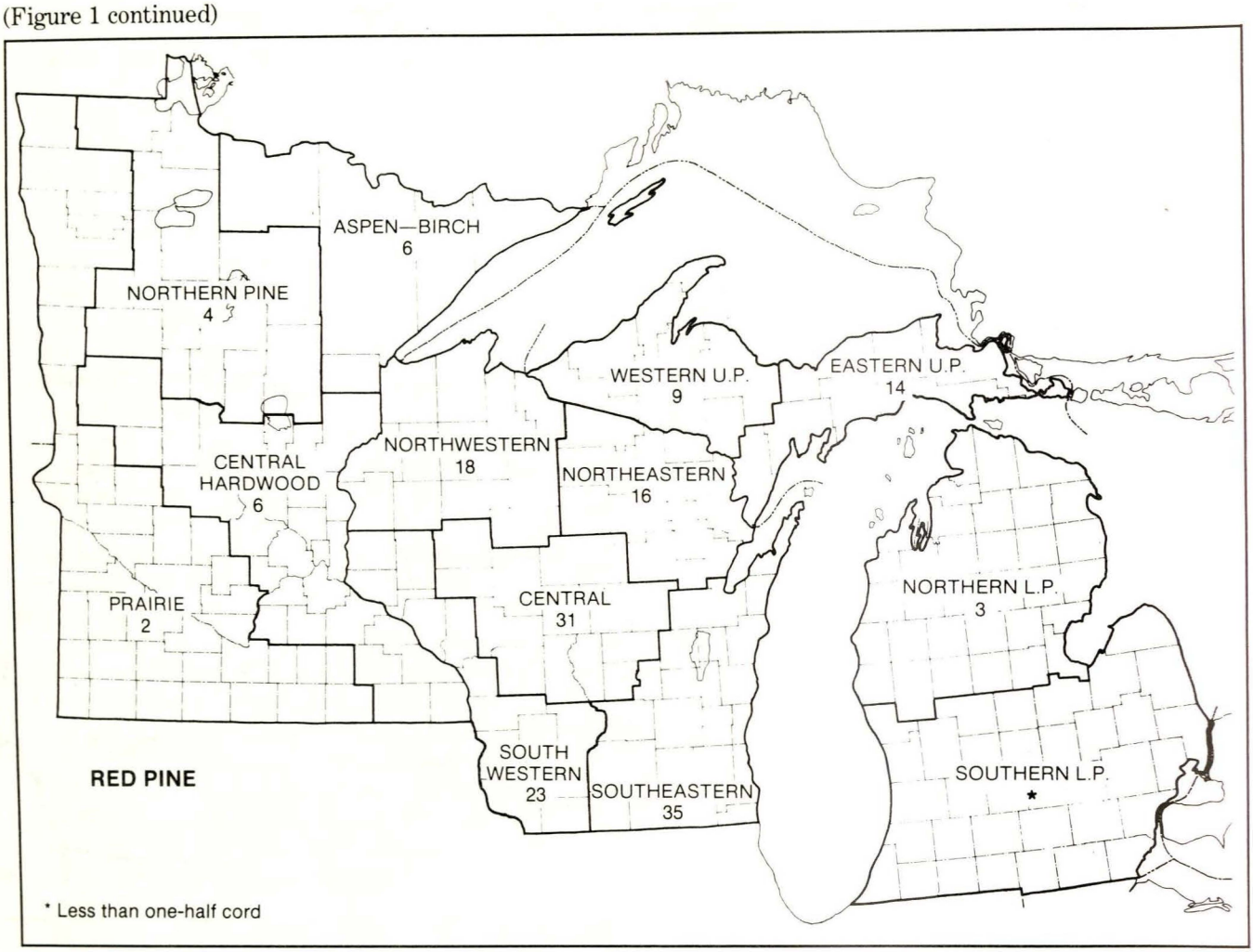
Minnesota.—Minnesota pulpwood receipts are not fully reported (see earlier explanation).

Industry Trends and Analysis

Pulp mills

Average daily pulp production inched up less than 1 percent to 10,940 tons per day in 1985 (table 3). A large new Michigan kraft mill began operating in late 1985. At least two mills are expanding their pulping capacity. Imports of eucalyptus pulp in the Lake States displaced some demand for pulpwood. Two small mills closed during 1985 in addition to the large mill complex mentioned earlier that partially closed.

(Figure 1 continued)



Lake States pulpwood production for pulp mills in 1983, 1984, and 1985 was:

Species	Production 1983	1984	1985
	(Thousand cords)		
Roundwood			
Aspen	2,133	2,273	2,109
Other species	2,618	2,899	2,672
Residue	445	493	452
Total	5,196	5,665	5,233

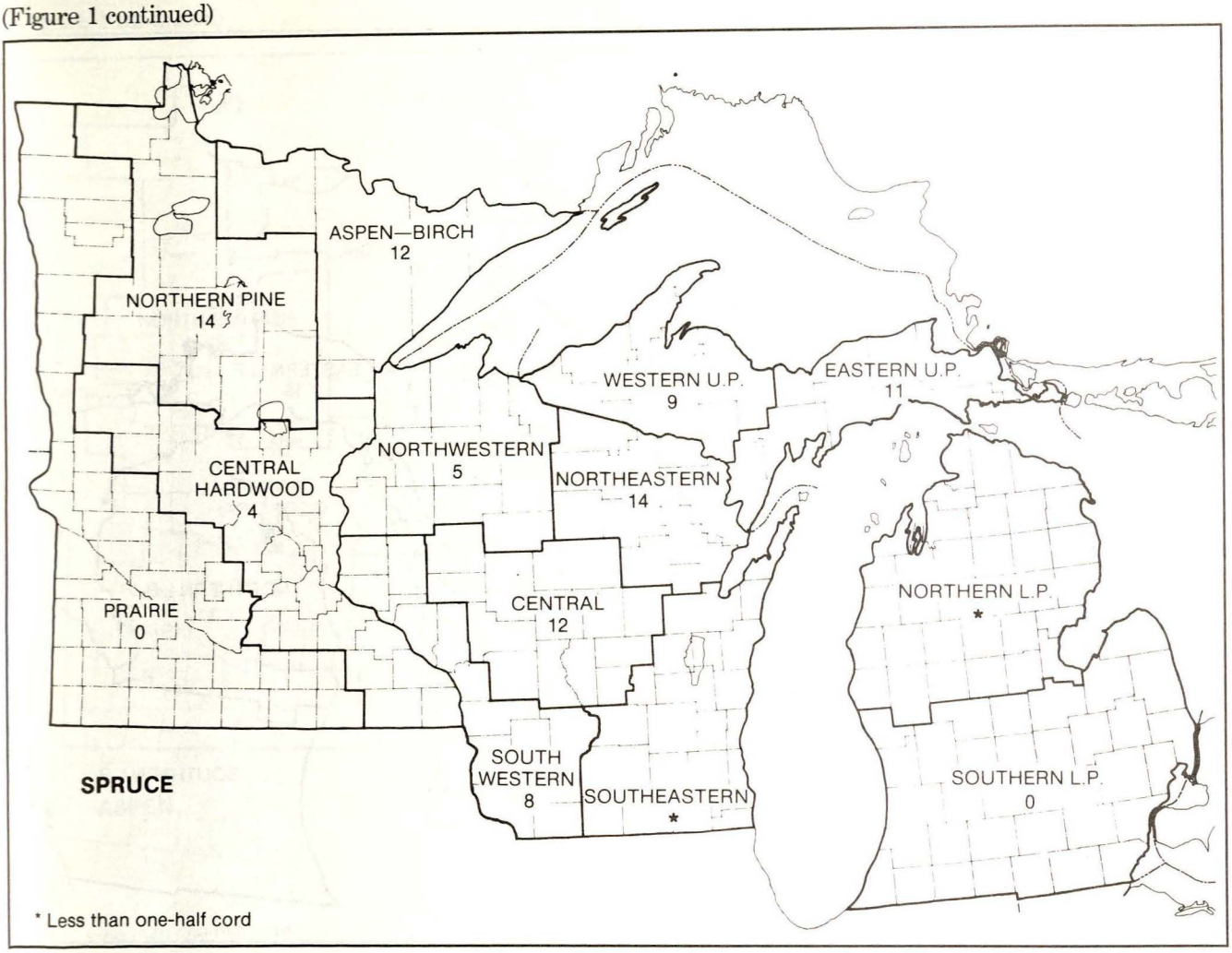
The 8-percent drop in Lake States pulpwood production for pulp mills compares unfavorably with the 2.3 percent fall in U.S. woodpulp production in 1985.

Flakeboard mills

The first medium density fiberboard mill in the Lake States began operating in Michigan during 1985, and another waferboard mill in Minnesota also began operating. Annual production capacity of the Lake States flakeboard mills increased to 1,050 million square feet as shown below:

Company	Location	Capacity (Million square feet 3/4-inch basis)
Champion International Corp.	Gaylord, MI	175
Louisiana-Pacific	Newberry, MI	50
Weyerhaeuser Co.	Grayling, MI	160
Louisiana-Pacific	Two Harbors, MN	75
Blandin Wood Products Co.	Grand Rapids, MN	125
Northwood Panelboard Co.	Bemidji, MN	80
Potlatch Corp.	Bemidji, MN	80
Potlatch Corp.	Cook, MN	80
Louisiana-Pacific	Hayward, WI	130
Rodman Industries	Marinette, WI	30
Weyerhaeuser Co.	Marshfield, WI	65
All companies		1,050

(Figure 1 continued)



Lake States pulpwood production for flakeboard mills in 1983, 1984, and 1985 was:

Species	Production 1983	1984	1985
		(Thousand cords)	
Roundwood			
Aspen	1,173	1,284	1,302
Other species	93	158	215
Residue	80	85	93
Total	1,346	1,527	1,610

Lake States pulpwood production for flakeboard expanded 5 percent because additional mills began operating and housing starts remained strong. One flakeboard mill is increasing its capacity.

Paper and paperboard markets have strengthened in 1986 and housing starts are holding up. If recently built pulp and flakeboard mills operate near capacity in 1986, the 1984 Lake States pulpwood production record should be broken in 1986.

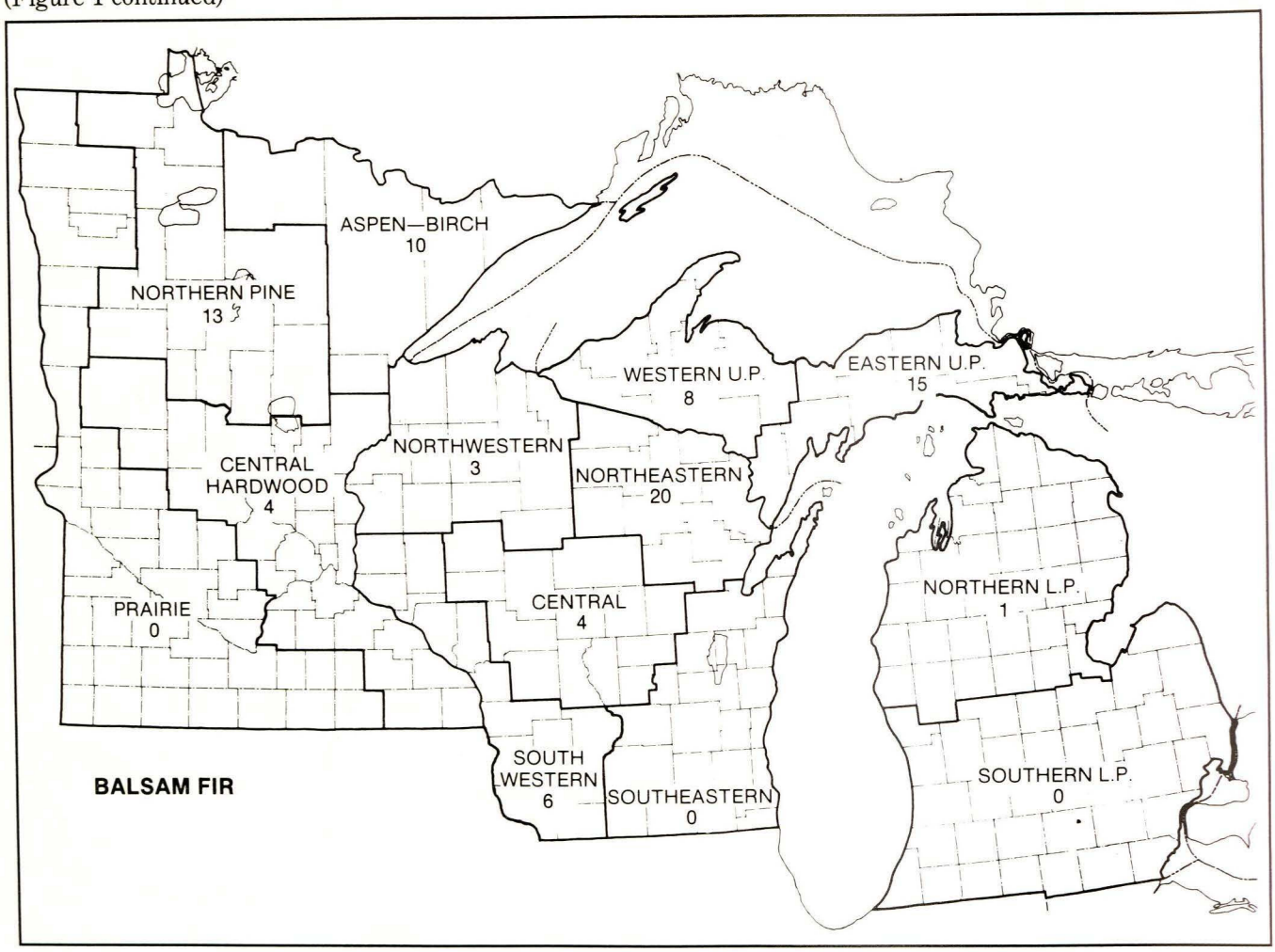
CENTRAL STATES

Production

Pulpwood production rebounded 2 percent to 402 thousand cords, (table 4), after falling in 1984 to the second lowest output in 15 years. Seventy-two out of every 100 cords were residue. Demand rose for hard hardwoods and for Central States mill residue, held steady for soft hardwoods, and fell for softwoods. Exports from the Central States (mainly hardwood residue) resumed their long-term uptrend with a 3-percent gain after plummeting 14 percent in 1984. Two-thirds of the pulpwood was shipped to Kentucky, Michigan, Wisconsin, Ohio, and Oklahoma mills.

Indiana, the leading producer, contributed 9 percent more pulpwood in 1985 than in 1984 and was close to its 1983 peak. Illinois production was the lowest since 1958. Output was higher in Missouri and nominally lower in Iowa.

(Figure 1 continued)



Loggers harvested pulpwood in 21 Illinois counties, 17 Missouri counties, 16 Indiana counties, and 7 Iowa counties (fig. 3). Producing areas expanded in east central Illinois and southeast Missouri and contracted in southeast Iowa.

Receipts

Three Central States pulp mills received 136 thousand cords in 1985 compared to 135 thousand cords in 1984. Higher receipts of hardwood residue from wood-using mills more than offset the drop in hardwood roundwood receipts. No softwoods were used for pulp in the Central States for the third time in the last 4 years. Only 3 thousand cords were imported.

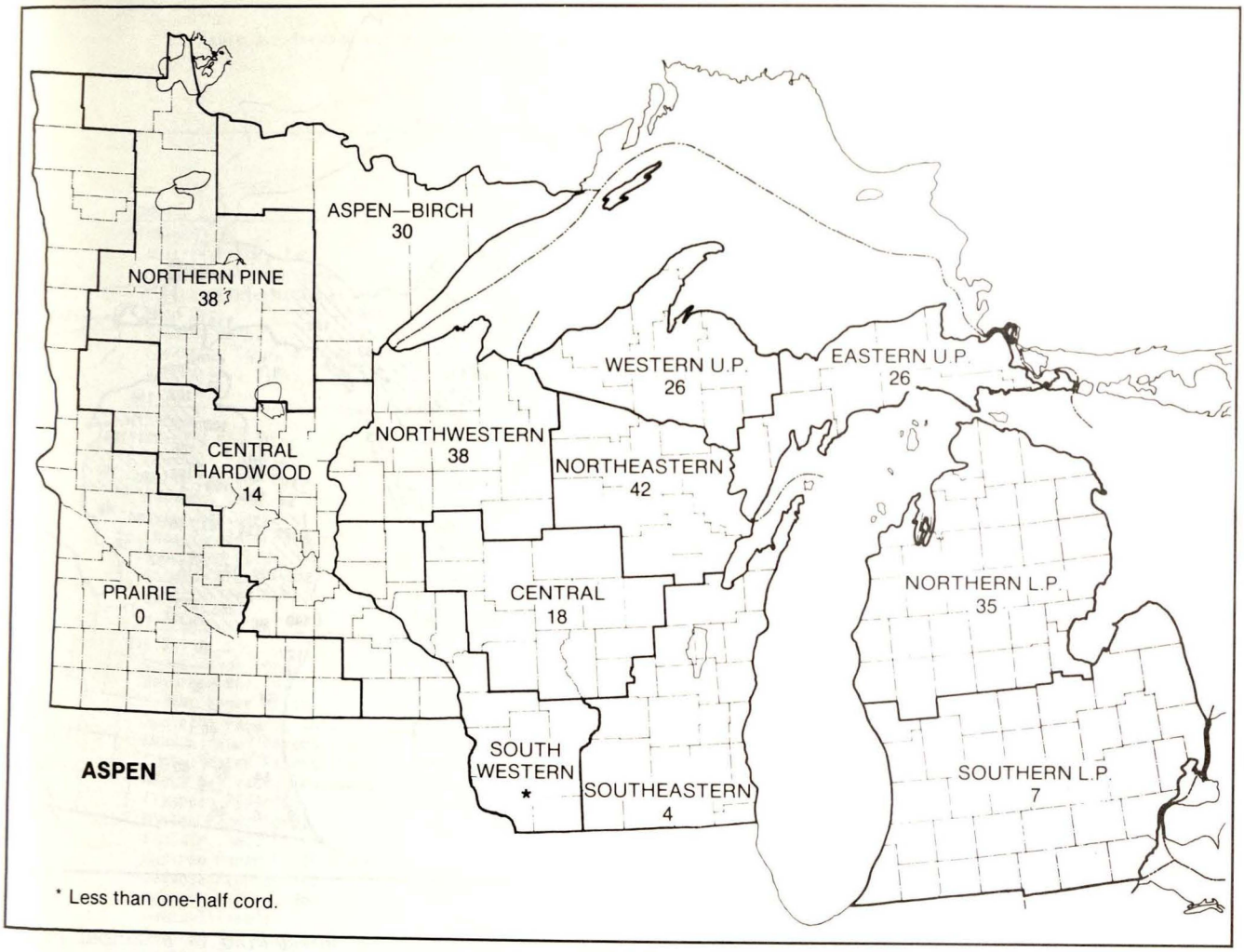
Industry Trends and Analysis

Average daily pulp production remained at 470 tons (table 5). No changes in average daily production are anticipated.

Mills in adjacent States will probably continue to be the principal markets for Central States pulpwood. Central States pulp mills that closed during the last decade are likely to remain closed.

Assuming that no more Central States mills close, annual pulpwood production will probably remain within 12 percent of 400,000 cords during the next 3 years.

(Figure 1 continued)



* Less than one-half cord.

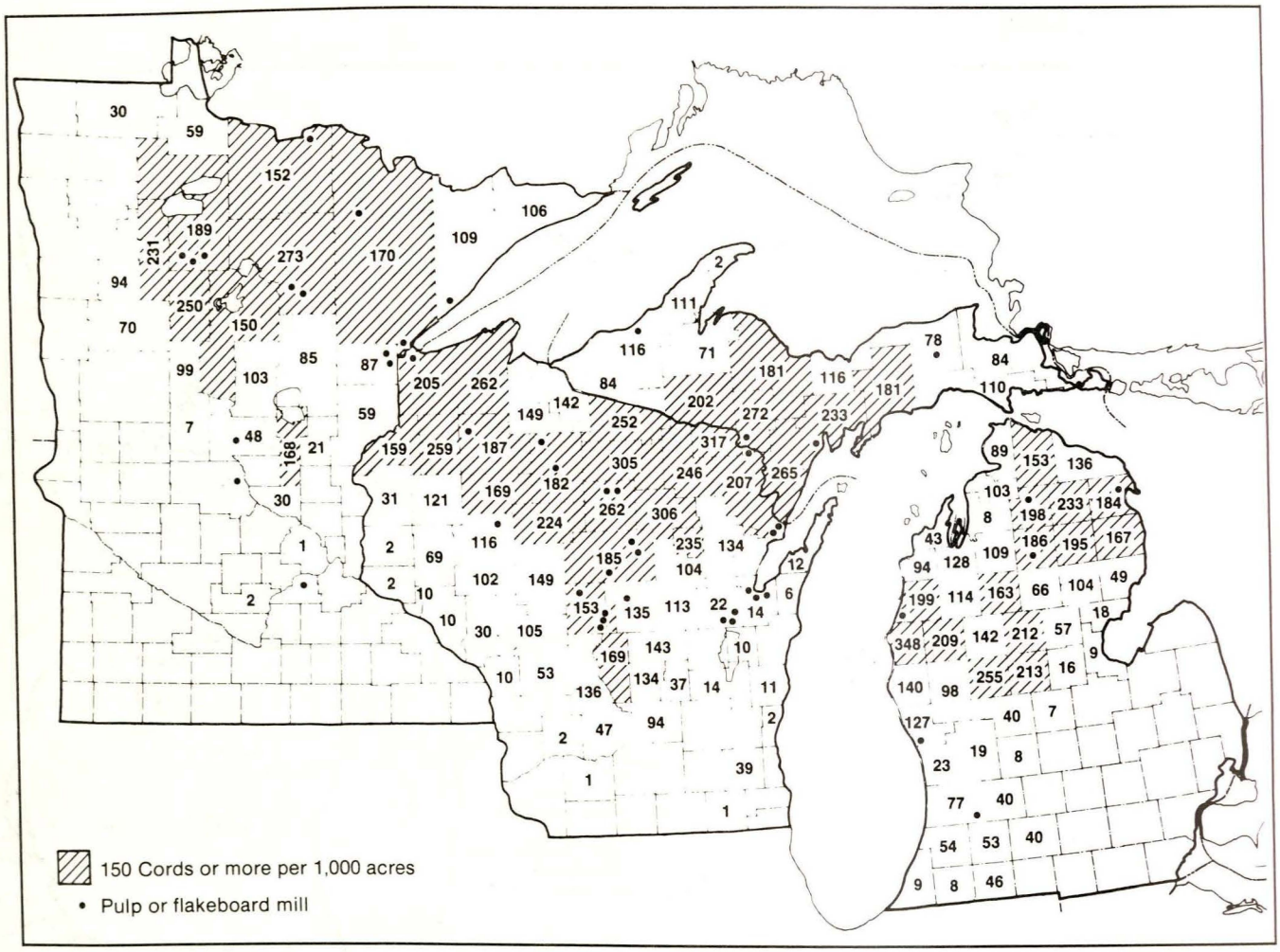


Figure 2.—*Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1985. Acres of stocked commercial forest land (stocking of trees greater than 16.7 percent) were determined during the last forest inventory in each State. Locations of active pulp and flakeboard mills are shown.*

Table 2.--Numbers of industrial plants in the Lake States using a particular species or residue for pulping and flakeboard in 1985

Species and kind of material	Total Lake States	State		
		Michigan	Minnesota	Wisconsin
Aspen	44	10	14	20
Balsam fir	11	2	4	5
Birch	18	7	--	11
Hemlock	6	1	--	5
Pine	11	5	2	4
Spruce	12	1	5	6
Tamarack	6	1	2	3
Maple	19	9	--	10
Oak	16	9	--	7
Other hardwoods	21	8	4	9
Softwood residue	12	2	2	8
Hardwood residue	17	7	1	9
Total plants[1/]	48	10	14	24

[1/] Some plants use more than one species, so numbers in columns are not additive.

Table 3.--Average daily production of active woodpulp mills in the Lake States by mill, location, and type of pulp produced, 1985

(In tons per 24 hours)[1/]

Company	Location	All types	Type of pulp			
			Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
Michigan						
Abitibi-Price, Inc.	Alpena	430	--	--	430	--
Champion International	Quinnesec	750	--	750	--	--
Champion International	Ontonagon	440	--	--	--	440
Mead Corp.	Escanaba	800	--	600	200	--
Menasha Corp.	Otsego	225	--	--	--	225
Packaging Corp. of America	Filer City	600	--	--	--	600
Warren Co., S.D.	Muskegon	250	--	250	--	--
Total	7 mills	3,495	--	1,600	630	1,265
Minnesota						
Blandin Paper Co.	Grand Rapids	300	--	--	300	--
Hennepin Paper Co.	Little Falls	75	--	--	75	--
Boise Cascade Corp.	International Falls	380	--	380	--	--
Potlatch Corp.	Cloquet	475	--	475	--	--
Superwood Corp.	Bemidji	100	--	--	100	--
Champion International	Sartell	385	--	--	385	--
Superwood Corp.	Duluth	350	--	--	350	--
Conwed Corp.	Cloquet	50	--	--	50	--
Certain-Teed Corp.	Shakopee	80	--	--	80	--
Total	9 mills	2,195	--	855	1,340	--
Wisconsin						
James River Corp.	Green Bay	150	150	--	--	--
Weyerhaeuser Co.	Rothschild	200	200	--	--	--
Badger Paper Mills	Peshtigo	100	100	--	--	--
Appleton Papers, Inc.	Combined Locks	200	--	--	200	--
Consolidated Papers, Inc.	Stevens Point	310	--	--	310	--
Consolidated Papers, Inc.	Wisconsin Rapids	815	--	515	300	--
Green Bay Packaging, Inc.	Green Bay	200	--	--	--	200
Flambeau Paper Co.	Park Falls	120	120	--	--	--
Midtec Paper Corp.	Kimberly	180	--	--	180	--
Pentair, Inc.	Niagara	210	--	--	210	--
Mosinee Paper Mills Co.	Mosinee	220	--	220	--	--
Nekoosa Papers, Inc.	Nekoosa	335	--	335	--	--
Nekoosa Papers, Inc.	Port Edwards	235	235	--	--	--
Owens-Illinois	Tomahawk	1,000	--	--	--	1,000
Procter and Gamble, Inc.	Green Bay	2/	2/	2/	2/	2/
Genstar Corp.	Cornell	100	--	--	100	--
Superior Fiber Products Co.	Superior	140	--	--	140	--
Thilmany Pulp and Paper Co.	Kaukauna	400	--	400	--	--
Tomahawk Pulp Co., Inc.	Tomahawk	50	--	--	50	--
Wausau Paper Mills Co.	Brokaw	185	185	--	--	--
Superwood Corp.	Phillips	100	--	--	100	--
Total	21 mills	5,250	990	1,470	1,590	1,200
All States	37 mills	10,940	990	3,925	3,560	2,465

1/ Lockwood's Directory of the Paper and Allied Industries -- 1986.

2/ Capacity not available.

Table 4.--Production and imports of pulpwood, Central States, 1985

(In standard cords, unpeeled)[1/]

Species and destination	Production by States[2/]					Imports			Total receipts
	Illinois	Indiana	Iowa	Missouri	Regional total	Lake states	Other U.S.	Total imports	
Softwoods									
Exported [4/]	7,614	--	--	1,259	8,873	--	--	--	--
Total	7,614	--	--	1,259	8,873	--	--	--	--
Soft hardwoods									
Central States [3/]	4,650	14,800	4,683	9,020	33,153	--	1,342	1,342	34,495
Exported [4/]	6,117	2,476	--	1,132	9,725	--	--	--	--
Total	10,767	17,276	4,683	10,152	42,878	--	1,342	1,342	34,495
Hard hardwoods									
Central States [3/]	2,522	14,540	4,178	6,179	27,419	--	1,318	1,318	28,737
Exported [4/]	9,877	10,814	--	11,273	31,964	--	--	--	--
Total	12,399	25,354	4,178	17,452	59,383	--	1,318	1,318	28,737
Total roundwood									
Central States [3/]	7,172	29,340	8,861	15,199	60,572	--	2,660	2,660	63,232
Exported [4/]	23,608	13,290	--	13,664	50,562	--	--	--	--
Total	30,780	42,630	8,861	28,863	111,134	--	2,660	2,660	63,232
Residue, softwoods									
Exported [4/]	4,013	--	6,044	2,283	12,340	--	--	--	--
Total	4,013	--	6,044	2,283	12,340	--	--	--	--
Residue, hardwoods									
Central States [3/]	17,458	38,984	4,562	11,325	72,329	435	--	435	72,764
Exported [4/]	15,941	142,431	--	48,210	206,582	--	--	--	--
Total	33,399	181,415	4,562	59,535	278,911	435	--	435	72,764
All wood material									
Central States [3/]	24,630	68,324	13,423	26,524	132,901	435	2,660	3,095	135,996
Exported [4/]	43,562	155,721	6,044	64,157	269,484	--	--	--	--
Total	68,192	224,045	19,467	90,681	402,385	435	2,660	3,095	135,996

[1/] Factors used in converting to standard green cords (128 cu.ft. including bark and air space) were:
4,266 pounds of softwood roundwood;
4,795 pounds of soft hardwood roundwood;
5,394 pounds of hard hardwood roundwood;
4,100 pounds of softwood chips (green mill residue);
4,400 Pounds of hardwood chips (green mill residue);
2,500 Pounds of chips (all species, dry mill residue).

[2/] Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.

[3/] Combined to prevent disclosure of individual mill receipts.

[4/] Pulpwood shipped to mills outside the region.

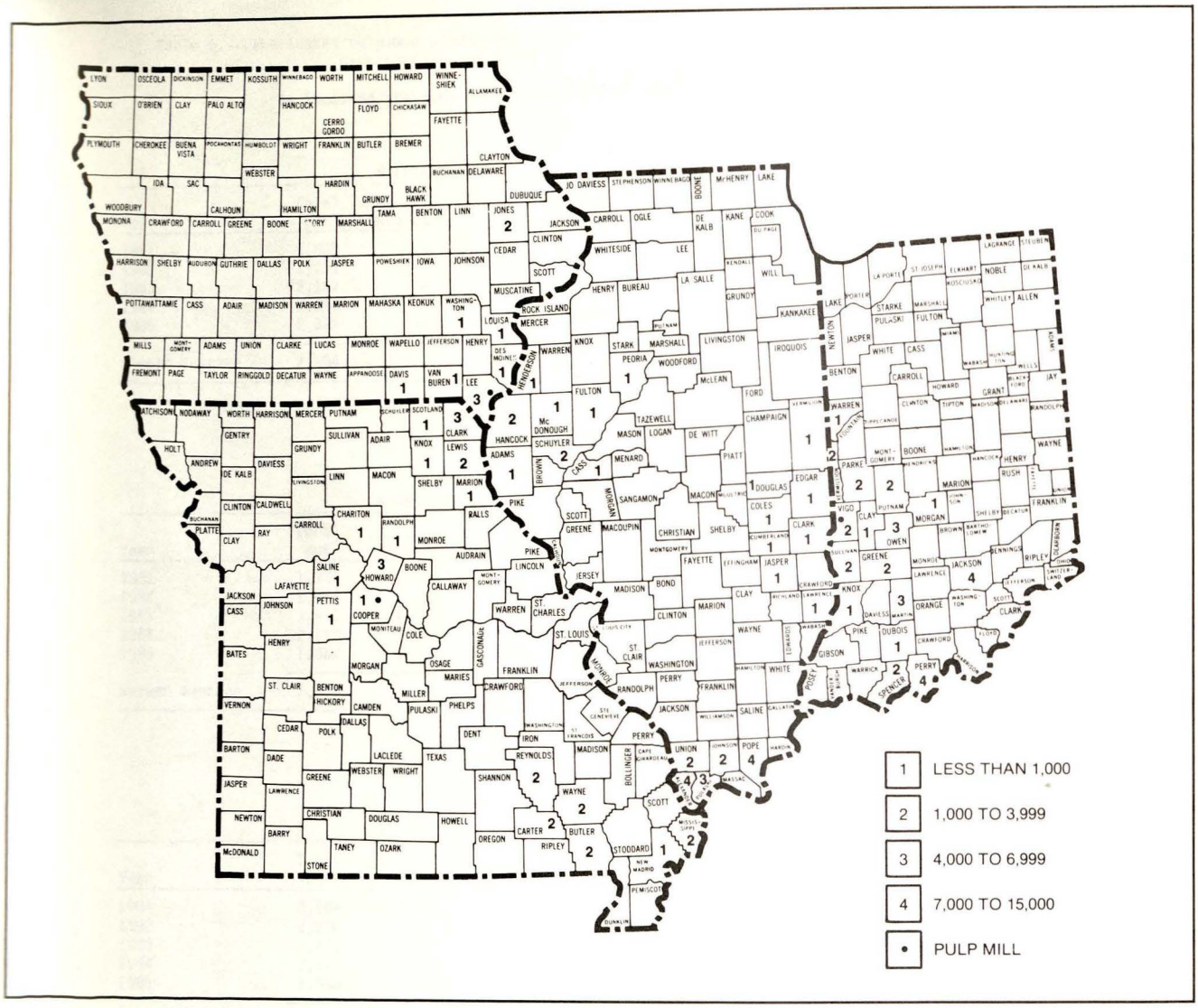


Figure 3.—*Production of pulpwood from roundwood (including chips from roundwood) in the Central States by counties, in standard cords, 1985. Locations of active pulp mills are shown.*

Table 5.--Average daily production of active woodpulp mills in the Central States by mill, location, and type of pulp produced, 1985

(In tons per 24 hours)[1/]

Company	Location	All types	Type of pulp			
			Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
Illinois						
(No current operations)						
Total	0 mills	--	--	--	--	--
Indiana						
Weston Paper and Mfg. Co.	Terre Haute	270	--	--	--	270
Total	1 mill	270	--	--	--	270
Iowa						
Consolidated Packaging Corp.	Fort Madison	140	--	--	--	140
Total	1 mill	140	--	--	--	140
Missouri						
Huebert Fibreboard, Inc.	Booneville	60	--	--	60	--
Total	1 mill	60	--	--	60	--
All states	3 mills	470	--	--	60	410

[1/] Lockwood's Directory of the Paper and Allied Industries -- 1986.

APPENDIX

Conversion Factors Used in Lake States

Standard cords of green roundwood per green ton:

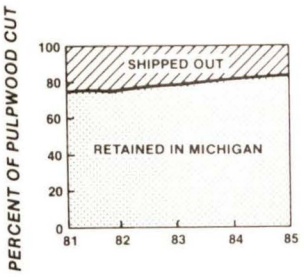
Species	Factor
Cedar	0.6329
Balsam fir	.4688
Hemlock	.4150
Jack pine	.4688
Red pine	.4688
White pine	.4777
Spruce	.5014
Tamarack	.4291
Ash	.4330
Aspen	.4291
Balsam poplar	.4083
Basswood	.5167
Beech	.3956
White birch	.4018
Yellow birch	.3723
Cottonwood	.4291
Elm	.4018
Hickory	.3701
Hard maple	.3617
Soft maple	.4083
Red oak	.3444
White oak	.3723
Other species	.4688

Table 6.--Lake States pulpwood production by State of origin and destination, 1981-1985

(In thousand standard cords, unpeeled)

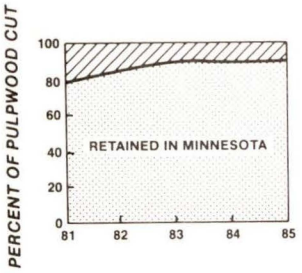
MICHIGAN

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1981	1,838	--	419	1,402	17
1982	1,751	--	396	1,340	15
1983	2,157	--	391	1,747	19
1984	2,398	--	442	1,934	22
1985	2,376	--	392	1,972	12
5-year average	2,104	--	408	1,679	17



MINNESOTA

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1981	1,371	1,119	177	--	75
1982	1,484	1,264	179	--	41
1983	1,910	1,720	155	--	35
1984	2,150	1,888	184	--	78
1985	1,880	1,714	105	--	61
5-year average	1,759	1,541	160	--	58



WISCONSIN

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1981	2,389	34	2,320	26	9
1982	2,286	27	2,231	28	--
1983	2,475	53	2,399	23	--
1984	2,644	65	2,534	45	--
1985	2,588	59	2,465	64	1/
5-year average	2,476	47	2,390	37	2

1/ Less than 500 cords.

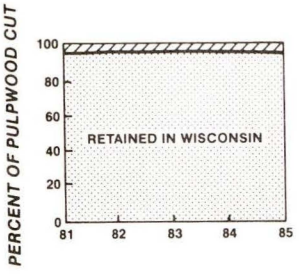


Table 7.--Lake States pulpwood production by Forest Survey Unit and destination by State, 1985

(In thousand standard cords, unpeeled)

Unit	Total cut	Destination of pulpwood			
		Michigan	Minnesota	Wisconsin	Other
MICHIGAN					
Roundwood					
E. Upper Peninsula	568	455	--	103	10
W. Upper Peninsula	631	372	--	259	1/
N. Lower Peninsula	953	945	--	6	2
S. Lower Peninsula	61	61	--	--	--
Total	2,213	1,833	--	368	12
Residue	163	139	--	24	--
Total pulpwood	2,376	1,972	--	392	12
MINNESOTA					
Roundwood					
Aspen-Birch	781	--	677	48	56
Northern Pine	951	--	903	48	--
Central Hardwood	58	--	54	4	--
Prairie	--	--	--	--	--
Total	1,790	--	1,634	100	56
Residue	90	--	81	5	4
Total pulpwood	1,880	--	1,715	105	60
WISCONSIN					
Roundwood					
Northeastern	912	19	--	893	--
Northwestern	955	21	59	875	--
Central	385	--	--	385	--
Southwestern	29	--	--	29	--
Southeastern	15	--	--	15	--
Total	2,296	40	59	2,197	--
Residue	292	24	--	268	1/
Total pulpwood	2,588	64	59	2,465	1/

1/ Less than 500 cords.

Table 8.--Lake States annual pulpwood production from roundwood by species, State, and Forest Survey Unit, 1981-1985

(In thousand standard cords, unpeeled)

Unit	All species[1]					Pine					Spruce				
	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985
MICHIGAN															
Eastern Upper Peninsula	414	425	500	510	568	56	77	95	113	101	24	33	45	43	44
Western Upper Peninsula	517	554	619	635	631	45	52	52	73	67	19	34	31	33	40
Northern Lower Peninsula	693	585	802	1,004	953	118	118	102	105	146	2	1	1	1	(2/)
Southern Lower Peninsula	48	66	63	59	61	18	15	8	2	(2/)	--	--	--	--	--
Total	1,672	1,630	1,984	2,208	2,213	237	262	257	293	314	45	68	77	77	84
MINNESOTA															
Aspen-Birch	635	618	803	940	782	71	92	68	100	71	93	98	66	90	83
Northern Pine	597	708	942	1,054	951	70	80	67	85	64	34	36	29	27	28
Central Hardwood	36	65	70	63	57	6	7	5	4	3	(2/)	--	(2/)	(2/)	(2/)
Prairie	2	(2/)	1	1	(2/)	(2/)	(2/)	--	(2/)	(2/)	(2/)	--	--	--	--
Total	1,270	1,391	1,816	2,058	1,790	147	179	140	189	138	127	134	95	117	111
WISCONSIN															
Northeastern	880	875	951	963	912	111	156	114	111	109	22	23	21	33	26
Northwestern	870	832	925	962	954	131	141	125	150	123	5	5	7	8	10
Central	315	303	300	377	385	150	166	137	182	182	(2/)	(2/)	(2/)	1	1
Southwestern	24	23	26	28	29	20	23	25	27	27	(2/)	(2/)	(2/)	(2/)	(2/)
Southeastern	9	10	14	18	15	7	8	11	13	10	--	--	(2/)	--	(2/)
Total	2,098	2,043	2,216	2,348	2,295	419	494	412	483	451	27	28	28	42	37
Total Lake States	5,040	5,064	6,016	6,614	6,298	803	935	809	965	903	199	230	200	236	232

(Table 8 continued on next page)

1/ Includes a small quantity of cedar not shown elsewhere in the table.

2/ Less than 500 cords.

(Table 8 continued)

Unit	Balsam fir					Hemlock					Tamarack				
	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985
MICHIGAN															
Eastern Upper Peninsula	57	56	59	44	49	23	30	27	25	19	3	3	4	5	2
Western Upper Peninsula	42	45	36	31	42	16	26	21	22	18	3	7	3	5	2
Northern Lower Peninsula	5	4	6	3	2	(2/)	(2/)	--	--	--	--	--	--	--	--
Southern Lower Peninsula	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	104	105	101	78	93	39	56	48	47	37	6	10	7	10	4
MINNESOTA															
Aspen-Birch	69	68	51	88	69	--	--	--	--	--	11	24	12	6	7
Northern Pine	31	38	39	58	53	--	--	--	--	--	18	20	14	5	2
Central Hardwood	--	(2/)	--	--	(2/)	--	--	--	--	--	(2/)	(2/)	(2/)	(2/)	--
Prairie	--	--	--	--	--	--	--	--	--	--	1	(2/)	(2/)	(2/)	--
Total	100	106	90	146	122	--	--	--	--	--	30	44	26	11	9
WISCONSIN															
Northeastern	79	70	61	60	59	24	29	29	21	32	1	2	2	2	1
Northwestern	25	32	22	20	12	4	4	9	3	3	3	4	3	2	(2/)
Central	1	1	2	1	--	1	(2/)	2	1	1	1	1	1	(2/)	(2/)
Southwestern	(2/)	(2/)	--	--	1	--	--	--	--	(2/)	--	(2/)	--	--	--
Southeastern	--	(2/)	--	--	--	--	--	--	--	(2/)	--	--	--	--	--
Total	105	103	85	81	72	29	33	40	25	36	5	7	6	4	1
Total Lake States	309	314	276	305	287	68	89	88	72	73	41	61	39	25	14

(Table 8 continued on next page)

2/ Less than 500 cords.

(Table 8 continued)

MICHIGAN

Unit	Aspen					Birch					Other hardwoods				
	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985
Eastern Upper Peninsula	89	93	109	117	144	36	31	40	40	41	119	97	106	114	134
Western Upper Peninsula	201	210	242	212	244	44	38	64	54	48	143	135	161	200	154
Northern Lower Peninsula	350	315	523	620	576	25	19	26	26	20	194	128	144	251	209
Southern Lower Peninsula	12	14	15	13	13	(2/)	1	(2/)	(2/)	(2/)	17	36	40	43	48
Total	652	632	889	962	977	105	89	130	120	109	473	396	451	608	545
MINNESOTA															
Aspen-Birch	352	308	563	619	524	9	1	3	2	1	31	27	40	35	27
Northern Pine	422	504	766	853	787	2	2	1	1	1	19	28	26	24	18
Central Hardwood	27	54	62	56	50	(2/)	(2/)	(2/)	(2/)	(2/)	3	4	3	3	3
Prairie	(2/)	--	1	1	--	--	--	--	--	--	--	--	--	--	--
Total	801	866	1,392	1,529	1,361	11	3	4	3	2	53	59	69	62	48
WISCONSIN															
Northeastern	415	392	451	435	396	74	69	83	90	82	154	134	190	209	205
Northwestern	469	420	481	522	556	73	74	103	105	98	160	152	175	154	153
Central	79	71	91	107	117	12	11	12	13	13	70	53	56	73	71
Southwestern	1	(2/)	(2/)	(2/)	1	(2/)	(2/)	(2/)	(2/)	(2/)	3	(2/)	(2/)	1	1
Southeastern	1	1	2	2	3	(2/)	(2/)	(2/)	(2/)	(2/)	2	1	1	2	1
Total	965	884	1,025	1,066	1,073	159	154	198	208	193	389	340	422	439	431
Total Lake States	2,418	2,382	3,306	3,557	3,411	275	246	332	331	304	915	795	942	1,109	1,024

2/ Less than 500 cords.

Table 9.--Lake States pulpwood production from roundwood by county and species group, 1985

(In standard cords, unpeeled)

MICHIGAN

Unit and county[1/]	All species	Species group: Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar
E. Upper Peninsula												
Alger	55,958	2,963	2,871	4,255	7,919	1,736	1,639	2,903	152	444	7,730	2,123
Chippewa	58,868	4,318	1,916	928	12,781	1,747	2,555	4,676	142	229	19,635	622
Delta	133,599	8,124	15,996	3,839	8,187	9,035	4,125	14,792	822	697	31,379	4,070
Luce	36,096	907	1,376	385	7,284	350	514	2,020	41	349	6,450	479
Mackinac	56,711	1,533	3,866	1,157	2,226	500	787	4,454	108	255	25,313	1,953
Menominee	130,357	6,178	17,473	5,113	2,283	2,467	2,887	8,053	482	729	44,185	6,157
Schoolcraft	96,163	8,125	5,819	3,440	19,304	8,327	4,574	7,551	360	428	9,547	3,000
Total	567,752	32,148	49,317	19,117	59,984	24,162	17,081	44,449	2,107	3,131	144,239	18,404
W. Upper Peninsula												
Baraga	36,375	867	639	1,973	7,531	305	487	784	41	332	10,613	--
Dickinson	101,723	3,797	12,999	3,426	1,764	1,210	1,671	10,686	423	484	42,868	2,560
Gogebic	51,983	40	1,622	2,732	2,839	1,604	1,141	2,799	14	1,973	12,054	--
Houghton	56,202	2,491	4,465	1,360	3,238	1,601	1,284	3,735	263	483	18,728	--
Iron	131,909	1,427	8,435	1,362	2,686	840	1,092	9,193	299	1,514	64,179	1,867
Keweenaw	370	--	--	42	--	--	--	--	--	6	167	--
Marquette	174,742	8,300	13,501	6,144	29,416	2,498	4,610	11,791	584	892	40,046	5,888
Ontonagon	77,576	--	191	581	513	467	523	--	--	588	55,119	--
Total	630,880	16,922	41,852	17,620	47,987	8,525	10,808	38,988	1,624	6,272	243,774	10,315
N. Lower Peninsula												
Alcona	50,760	--	59	--	915	554	--	4	--	180	37,906	1,320
Alpena	38,555	--	187	--	2,370	--	--	55	--	400	25,161	864
Antrim	1,193	--	--	--	19	166	--	--	--	--	1,008	--
Arenac	1,707	--	--	--	360	--	--	--	--	--	1,107	--
Bay	164	--	--	--	41	--	--	--	--	--	123	--
Benzie	11,417	--	--	--	218	453	--	--	--	56	7,152	--
Charlevoix	14,057	--	--	--	505	--	--	--	--	71	8,834	45
Cheboygan	55,675	--	227	--	11,934	392	--	62	--	110	34,820	190
Clare	45,699	--	--	--	315	535	--	--	--	41	41,890	74
Crawford	50,910	--	--	--	14,361	1,088	--	--	--	58	25,051	--
Emmet	17,268	--	--	--	2,951	1,929	--	--	--	9	9,316	31
Gladwin	10,913	--	--	--	1,203	--	--	--	--	68	7,884	--
Grand Traverse	19,529	--	--	--	1,519	686	--	--	--	44	13,408	--
Iosco	10,970	--	34	--	1,622	1,126	--	9	--	217	4,926	155
Isabella	15,962	--	--	--	--	--	--	--	--	10	15,021	--
Kalkaska	26,719	--	--	--	7,020	2,041	--	--	--	37	15,638	--
Lake	62,597	--	--	--	3,317	306	--	--	--	432	26,736	--
Leelanau	3,286	--	--	--	25	45	--	--	--	2	2,799	--
Manistee	43,248	--	--	--	2,528	1,266	--	--	--	237	14,499	--
Mason	50,833	--	--	--	--	--	--	--	--	1,102	31,919	--
Mecosta	30,627	--	--	--	60	377	--	--	--	25	28,312	--
Midland	2,416	--	--	--	--	--	--	--	--	2	2,080	57
Missaukee	33,304	--	--	--	1,665	1,516	--	--	--	84	25,251	--
Montmorency	67,444	--	19	--	17,190	97	--	5	--	184	40,559	466
Newaygo	30,320	--	--	--	2,618	42	--	--	--	149	15,378	--
Oceana	20,113	--	--	--	54	54	--	--	--	47	15,638	--
Ogemaw	22,609	--	--	--	3,832	117	--	--	--	106	13,601	195
Osceola	22,334	--	--	--	193	907	--	--	--	215	15,426	--
Oscoda	59,761	--	69	--	25,111	578	--	19	--	207	24,251	503
Otsego	51,610	--	--	--	22,259	72	--	--	--	42	20,886	61
Presque Isle	36,232	--	911	--	1,604	103	--	257	--	456	24,332	732
Roscommon	16,301	--	162	--	1,288	865	--	44	--	10	12,765	26
Wexford	28,287	--	--	--	413	3,293	--	--	--	383	12,082	--
Total	952,820	--	1,668	--	127,510	18,608	--	455	--	4,984	575,759	4,719
S. Lower Peninsula												
Allegan	10,597	--	--	--	--	--	--	--	--	524	1,766	--
Barry	4,482	--	--	--	--	--	--	--	--	213	758	--
Berrien	574	--	--	--	--	--	--	--	--	--	--	--
Calhoun	3,027	--	--	--	--	--	--	--	--	--	--	--
Cass	410	--	--	--	--	--	--	--	--	--	--	--
Gratiot	201	--	--	--	--	--	--	--	--	--	201	--
Ionia	291	--	--	--	--	--	--	--	--	--	291	--
Kalamazoo	3,562	--	--	--	--	--	--	--	--	194	193	--
Kent	2,307	--	--	--	--	--	--	--	--	6	1,740	--
Montcalm	5,607	--	--	--	--	--	--	--	--	10	4,908	--
Muskegon	20,157	--	--	--	8	--	--	--	--	188	2,222	--
Ottawa	1,828	--	--	--	7	7	--	--	--	72	395	--
St. Joseph	2,672	--	--	--	--	--	--	--	--	--	158	--
Van Buren	5,457	--	--	--	--	--	--	--	--	284	507	--
Washtenaw	22	--	--	--	11	11	--	--	--	--	--	--
Total	61,194	--	--	--	26	18	--	--	--	1,491	13,139	--
State total	2,212,646	49,070	92,837	36,737	235,507	51,313	27,889	83,892	3,731	15,878	976,911	33,438

[1/] Includes only those counties that supplied pulpwood in 1985.

(Table 9 continued on next page)

(Table 9 continued)

MICHIGAN

Unit and county[1/]	Species group											
	Basswood	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hardwoods
E. Upper Peninsula												
Alger	1,118	1,586	3,000	1,960	--	3,179	--	5,512	3,831	324	--	713
Chippewa	408	1,045	710	645	--	276	--	3,585	2,314	281	--	55
Delta	2,533	3,004	6,857	3,686	--	2,226	--	6,584	6,690	413	7	533
Luce	291	1,711	631	1,195	--	2,025	--	5,038	4,427	192	--	431
Mackinac	1,056	1,528	2,546	1,464	--	786	--	3,651	3,210	142	--	176
Menominee	2,654	2,556	7,804	3,310	--	2,293	--	7,247	7,292	566	26	602
Schoolcraft	1,950	2,714	4,492	3,005	--	1,732	--	5,166	5,955	276	--	398
Total	10,010	14,144	26,040	15,265	--	12,517	--	36,783	33,719	2,194	33	2,908
W. Upper Peninsula												
Baraga	191	260	1,095	1,115	--	2,077	--	4,361	2,801	444	--	459
Dickinson	1,562	4	5,208	1,830	--	1,124	--	4,755	4,625	355	3	369
Gogebic	382	386	1,896	2,970	--	6,013	--	8,473	3,708	534	--	803
Houghton	750	113	3,012	1,720	--	1,557	--	5,632	4,901	544	--	325
Iron	1,068	836	4,978	3,209	--	6,718	--	13,509	6,548	646	8	1,495
Keweenaw	--	3	--	23	--	26	--	78	18	2	--	5
Marquette	3,849	4,261	10,883	5,524	--	3,143	--	10,861	10,842	810	--	899
Ontonagon	103	61	3,377	1,397	--	1,092	--	5,698	6,302	1,385	--	179
Total	7,905	5,924	30,449	17,788	--	21,750	--	53,367	39,745	4,720	11	4,534
N. Lower Peninsula												
Alcona	18	27	2,497	--	--	--	--	764	1,305	4,739	472	--
Alpena	40	59	1,453	--	--	--	--	1,087	1,762	4,703	414	--
Antrim	--	--	--	--	--	--	--	--	--	--	--	--
Arenac	--	--	--	--	--	--	--	180	--	60	--	--
Bay	--	--	--	--	--	--	--	--	--	--	--	--
Benzie	152	208	469	--	--	--	--	547	1,589	339	--	234
Charlevoix	32	2	178	--	--	--	--	3,790	172	372	4	52
Cheboygan	10	17	703	--	--	--	--	4,950	564	1,691	5	--
Clare	--	--	486	--	52	--	--	273	897	962	174	--
Crawford	--	--	58	--	--	--	--	78	405	9,228	583	--
Emmet	1	2	126	--	--	--	--	2,127	65	707	4	--
Gladwin	26	--	207	--	--	--	--	193	685	531	116	--
Grand Traverse	104	208	287	--	--	--	--	626	2,036	501	58	52
Iosco	21	31	470	--	--	--	--	66	910	1,197	186	--
Isabella	--	--	107	--	--	--	--	14	224	483	103	--
Kalkaska	104	52	123	--	--	--	--	626	331	616	79	52
Lake	417	521	645	52	--	--	--	335	3,584	19,195	6,878	179
Leelanau	--	--	2	--	--	--	--	211	17	116	25	44
Manistee	521	729	812	156	--	156	--	1,993	6,318	8,828	4,268	937
Mason	1,146	833	2,373	104	--	208	--	584	4,399	5,165	2,375	625
Mecosta	--	--	25	--	--	--	--	33	422	1,130	243	--
Midland	--	--	106	--	63	--	--	2	11	78	17	--
Missaukee	313	--	843	52	--	--	--	2	3,237	171	66	104
Montmorency	18	27	995	--	--	--	--	3,470	899	3,242	273	--
Newaygo	--	--	170	--	--	--	--	199	1,090	8,274	2,400	--
Oceana	14	64	107	--	--	--	--	63	483	2,639	950	--
Ogemaw	8	13	540	--	--	--	--	1,148	557	2,212	280	--
Osceola	104	--	564	--	--	--	--	35	3,094	1,421	375	--
Oscoda	17	26	1,197	--	--	--	--	1,592	1,134	4,612	445	--
Otsego	4	6	388	--	--	--	--	6,382	250	1,240	20	--
Presque Isle	46	69	3,133	--	--	--	--	709	2,381	1,351	148	--
Roscommon	--	--	156	--	--	--	--	14	68	800	103	--
Wexford	755	443	451	104	--	--	--	605	5,406	3,447	749	156
Total	3,871	3,337	19,671	468	115	364	--	32,698	44,295	90,050	21,813	2,435
S. Lower Peninsula												
Allegan	1,240	474	4	--	206	482	178	439	1,982	1,482	1,820	--
Barry	508	195	--	--	85	198	73	179	806	731	736	--
Berrien	--	--	--	--	--	--	59	58	65	274	118	--
Calhoun	--	--	--	--	--	--	--	--	--	2,069	958	--
Cass	--	--	--	--	--	--	41	--	46	155	168	--
Gratiot	--	--	--	--	--	--	--	--	--	--	--	--
Ionia	--	--	--	--	--	--	--	--	--	--	--	--
Kalamazoo	463	178	--	--	77	180	66	162	732	649	668	--
Kent	--	--	6	--	--	--	--	7	61	342	145	--
Montcalm	--	--	10	--	--	--	--	14	70	490	105	--
Muskegon	--	--	188	--	--	--	--	251	2,438	11,095	3,767	--
Ottawa	161	62	4	--	27	63	23	61	279	398	269	--
St. Joseph	--	--	--	--	--	--	273	--	302	1,526	413	--
Van Buren	675	258	1	--	112	262	97	237	1,070	975	979	--
Washtenaw	--	--	--	--	--	--	--	--	--	--	--	--
Total	3,047	1,167	213	--	507	1,185	810	1,408	7,851	20,186	10,146	--
State total	24,833	24,572	76,373	33,521	622	35,816	810	124,256	125,610	117,150	32,003	9,877

[1/] Includes only those counties that supplied pulpwood in 1985.

(Table 9 continued)

MINNESOTA

Unit and county[1]	All species	Species group: Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar
Aspen-Birch												
Carlton	26,794	--	1,955	--	560	458	31	2,063	237	--	19,255	2,235
Cook	56,533	--	13,342	--	5,012	47	9	14,625	--	--	23,378	--
Koochiching	193,065	--	20,175	--	19,702	4,582	7	28,917	6,395	--	108,572	4,271
Lake	92,708	--	8,575	--	4,469	574	84	11,659	38	--	65,915	1,368
St. Louis	412,240	--	24,814	--	28,721	6,094	315	25,798	731	--	307,028	18,412
Total	781,340	--	68,862	--	58,464	11,755	446	83,062	7,401	--	524,148	26,286
Northern Pine												
Aitkin	57,222	--	365	--	188	83	6	1,613	--	--	49,515	5,452
Becker	22,077	--	--	--	614	346	88	--	--	--	20,495	534
Beltrami	147,298	--	10,786	--	3,134	1,943	352	5,658	194	90	123,295	1,867
Cass	127,890	--	3,639	--	5,526	3,853	639	1,018	159	111	109,936	2,327
Clearwater	69,416	--	1,539	--	581	519	88	1,314	--	--	64,684	667
Crow Wing	38,129	--	22	--	2,811	1,640	239	147	--	--	32,550	720
Hubbard	99,370	--	381	--	1,853	1,432	352	483	--	--	93,335	1,534
Itasca	343,098	--	34,998	--	16,183	2,689	311	8,935	64	--	275,358	4,517
Lake of the Woods	20,323	--	795	--	8,730	48	--	6,579	1,203	--	2,937	31
Mahnomen	9,943	--	--	--	210	--	--	--	--	--	9,666	67
Roseau	5,738	--	173	--	3,622	--	--	1,890	27	--	26	--
Wadena	10,580	--	--	--	3,142	2,025	410	--	--	--	4,859	144
Total	951,084	--	52,698	--	46,594	14,578	2,485	27,637	1,647	201	786,656	17,460
Central Hardwood												
Hennepin	10	--	--	--	10	--	--	--	--	--	--	--
Kanabec	2,667	--	--	--	--	--	--	--	--	--	2,667	--
Mille Lacs	20,335	--	181	--	80	47	7	249	--	--	19,713	58
Morrison	7,071	--	--	--	80	47	7	--	--	--	6,908	29
Pine	24,842	--	118	--	453	407	24	--	--	--	20,541	3,250
Sherburne	1,705	--	--	--	1,169	536	--	--	--	--	--	--
Todd	738	--	--	--	80	47	7	--	--	--	575	29
Total	57,368	--	299	--	1,872	1,084	45	249	--	--	50,404	3,366
Prairie												
Sibley	26	--	--	--	13	13	--	--	--	--	--	--
Total	26	--	--	--	13	13	--	--	--	--	--	--
State total	1,789,818	--	121,859	--	106,943	27,430	2,976	110,948	9,048	201	1,361,208	47,112

[1] Includes only those counties that supplied pulpwood in 1985.

(Table 9 continued on next page)

(Table 9 continued)

MINNESOTA

Unit and county[1/]	Species group											
	Basswood	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hardwoods
Aspen-Birch												
Carlton	--	--	--	--	--	--	--	--	--	--	--	--
Cook	--	--	73	--	--	--	--	26	21	--	--	--
Koochiching	--	--	208	--	--	--	--	177	59	--	--	--
Lake	--	--	25	--	--	--	--	--	--	--	--	--
St. Louis	--	--	327	--	--	--	--	--	--	--	--	--
Total	--	--	633	--	--	--	--	203	80	--	--	--
Northern Pine												
Aitkin	--	--	--	--	--	--	--	--	--	--	--	--
Becker	--	--	--	--	--	--	--	--	--	--	--	--
Beltrami	--	--	226	--	--	63	--	59	31	--	--	--
Cass	--	--	529	--	--	83	--	32	38	--	--	--
Clearwater	--	--	24	--	--	--	--	--	--	--	--	--
Crow Wing	--	--	--	--	--	--	--	--	--	--	--	--
Hubbard	--	--	--	--	--	--	--	--	--	--	--	--
Itasca	--	--	43	--	--	--	--	--	--	--	--	--
Lake of the Woods	--	--	--	--	--	--	--	--	--	--	--	--
Mahnomen	--	--	--	--	--	--	--	--	--	--	--	--
Roseau	--	--	--	--	--	--	--	--	--	--	--	--
Wadena	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	822	--	--	146	--	91	69	--	--	--
Central Hardwood												
Hennepin	--	--	--	--	--	--	--	--	--	--	--	--
Kanabec	--	--	--	--	--	--	--	--	--	--	--	--
Mille Lacs	--	--	--	--	--	--	--	--	--	--	--	--
Morrison	--	--	--	--	--	--	--	--	--	--	--	--
Pine	--	--	49	--	--	--	--	--	--	--	--	--
Sherburne	--	--	--	--	--	--	--	--	--	--	--	--
Todd	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	49	--	--	--	--	--	--	--	--	--
Prairie												
Sibley	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	--	--	--	--	--	--	--	--
State total	--	--	1,504	--	--	146	--	294	149	--	--	--

[1/] Includes only those counties that supplied pulpwood in 1985.

(Table 9 continued on next page)

(Table 9 continued)

WISCONSIN

Unit and county[1/]	All species	Species group: Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tamarack	Ash	Aspen	Balsam poplar
Northeastern												
Florence	76,008	--	8,270	3,089	2,223	2,693	354	4,200	181	1,068	31,892	--
Forest	121,197	--	12,275	3,147	230	9,380	230	8,089	72	4,205	38,876	--
Langlade	114,314	--	4,061	721	1,609	5,383	45	1,021	--	4,275	40,798	--
Lincoln	102,635	--	3,981	1,221	2,397	5,250	282	1,158	104	2,412	47,783	--
Marinette	132,212	--	13,936	335	10,381	5,209	357	2,655	254	1,072	78,630	1,760
Menominee	49,621	--	--	21,200	7,167	883	490	--	--	572	9,177	--
Oconto	45,783	--	1,774	195	5,195	5,205	426	198	23	280	27,741	--
Oneida	150,477	--	7,499	967	12,311	12,054	3,023	6,021	350	3,202	62,830	--
Shawano	26,420	--	43	835	776	3,126	176	11	--	397	14,344	--
Vilas	93,583	--	7,501	767	7,313	3,609	1,466	2,583	63	704	44,507	--
Total	912,250	--	59,340	32,477	49,602	52,792	6,849	25,936	1,047	18,187	396,578	1,760
Northwestern												
Ashland	74,920	--	2,875	144	1,352	1,876	190	5,323	191	3,028	34,118	--
Barron	18,910	--	--	--	914	287	--	--	--	39	16,360	--
Bayfield	193,415	--	766	--	18,455	7,957	1,048	--	58	615	131,427	1,625
Burnett	49,427	--	--	--	17,552	1,939	65	17	--	42	29,099	203
Douglas	126,685	--	326	--	30,740	9,892	90	222	38	903	75,231	406
Iron	53,644	--	574	403	988	556	163	216	--	975	31,304	--
Polk	6,760	--	--	--	2,275	53	--	--	--	100	3,324	--
Price	97,723	--	2,780	561	1,559	2,544	11	1,476	49	5,250	38,604	--
Rusk	60,791	--	65	336	--	945	25	18	--	3,497	33,953	--
Sawyer	110,849	--	979	219	1,277	4,166	115	1,808	15	2,996	69,199	--
Taylor	77,229	--	3,138	1,723	63	3,320	51	550	23	2,152	29,563	--
Washburn	84,322	--	16	--	5,469	7,135	30	--	--	1,288	63,546	--
Total	954,675	--	11,519	3,386	80,644	40,670	1,788	9,630	374	20,885	555,728	2,234
Central												
Adams	38,777	--	--	--	18,060	16,316	1,565	37	--	30	751	--
Chippewa	25,368	--	65	53	602	453	636	35	21	1,432	11,462	--
Clark	46,723	--	23	22	2,557	1,895	69	--	3	1,670	22,322	--
Eau Claire	15,778	--	30	--	5,002	4,799	85	--	--	34	4,294	--
Jackson	38,878	--	48	20	18,176	6,459	680	26	84	42	7,616	--
Juneau	34,325	--	--	--	17,840	4,549	401	--	--	104	4,075	--
Marathon	65,142	--	619	477	2,054	8,316	246	285	--	913	35,110	--
Marquette	12,309	--	10	--	777	6,673	1,225	--	--	4	994	--
Monroe	12,726	--	--	--	6,654	3,500	636	5	--	36	993	--
Portage	23,177	--	55	117	3,550	9,105	1,373	193	54	334	5,052	--
Waupaca	19,567	--	38	51	292	6,229	915	53	--	317	8,995	--
Waushara	20,439	--	--	--	1,843	16,155	1,320	--	--	--	689	--
Wood	31,529	--	--	--	4,202	6,235	884	84	8	426	14,385	--
Total	384,738	--	888	740	81,609	90,684	10,035	718	170	5,342	116,738	--
Southwestern												
Buffalo	1,919	--	--	--	26	1,814	40	--	--	1	--	--
Dunn	11,742	--	--	--	3,015	6,627	197	--	--	74	719	--
Grant	34	--	--	--	--	34	--	--	--	--	--	--
Iowa	85	--	--	--	--	85	--	--	--	--	--	--
La Crosse	1,246	--	--	11	771	371	93	--	--	--	--	--
Pepin	548	--	--	--	46	289	52	39	--	2	96	--
Pierce	153	--	--	--	--	60	--	57	--	2	--	--
Richland	281	--	--	--	105	176	--	--	--	--	--	--
St. Croix	102	--	--	--	11	91	--	--	--	--	--	--
Sauk	8,473	--	13	--	800	6,650	1,010	--	--	--	--	--
Trempealeau	4,253	--	--	--	77	3,742	320	18	--	--	17	--
Total	28,836	--	13	11	4,851	19,939	1,712	114	--	79	832	--
Southeastern												
Brown	669	--	--	--	--	128	--	--	--	--	541	--
Calumet	240	--	--	--	--	--	--	--	--	--	240	--
Columbia	7,878	--	--	--	130	5,663	783	--	--	104	--	--
Door	1,248	--	--	--	--	20	--	--	--	--	1,228	--
Fond du Lac	493	--	--	--	--	127	366	--	--	--	--	--
Green Lake	785	--	--	--	63	712	10	--	--	--	--	--
Kewaunee	206	--	--	14	--	134	--	--	--	--	58	--
Outagamie	1,497	--	--	--	73	271	--	25	--	16	1,094	--
Ozaukee	25	--	--	--	--	25	--	--	--	--	--	--
Rock	13	--	--	--	--	13	--	--	--	--	--	--
Sheboygan	584	--	--	--	13	407	164	--	--	--	--	--
Walworth	22	--	--	--	--	22	--	--	--	--	--	--
Waukesha	1,256	--	--	--	--	1,234	22	--	--	--	--	--
Total	14,916	--	--	14	279	8,756	1,345	25	--	120	3,161	--
State total	2,295,415	--	71,760	36,628	216,985	212,841	21,729	36,423	1,691	44,613	1,073,037	3,994

[1/] Includes only those counties that supplied pulpwood in 1985.

(Table 9 continued on next page)

(Table 9 continued)

WISCONSIN

Unit and county[1]	Species group											
	Basswood	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hardwoods
Northeastern												
Florence	261	94	4,256	1,705	--	2,138	--	8,332	3,595	1,061	170	426
Forest	1,900	308	11,742	2,568	--	3,234	--	15,303	7,849	846	201	742
Langlade	1,494	90	10,084	2,946	--	5,327	--	25,655	8,731	163	35	1,876
Lincoln	1,045	--	5,036	590	--	3,885	--	15,555	11,497	--	--	439
Marinette	202	119	3,968	611	--	1,462	--	5,702	4,051	959	222	327
Menominee	--	730	535	934	--	2,480	--	2,972	1,463	564	117	337
Oconto	30	50	784	88	--	561	--	1,325	1,224	498	153	33
Oneida	1,019	31	20,590	1,637	--	1,383	--	9,762	7,256	162	10	370
Shawano	50	380	640	186	--	1,107	--	2,001	1,377	680	190	101
Vilas	465	43	12,279	971	--	492	--	7,249	3,096	142	138	195
Total	6,466	1,845	69,914	12,236	--	22,069	--	93,856	50,139	5,075	1,236	4,846
Northwestern												
Ashland	281	--	8,366	1,515	--	1,844	--	8,607	4,530	337	208	135
Barron	1	--	1,019	0	--	26	--	28	36	123	73	4
Bayfield	21	--	21,292	572	--	390	--	3,989	3,513	1,434	211	42
Burnett	21	--	206	--	--	0	--	110	110	63	--	--
Douglas	--	--	7,247	111	--	143	--	608	707	--	--	21
Iron	711	27	8,567	986	--	2,333	--	3,700	1,715	265	--	161
Polk	69	--	116	--	--	50	--	50	117	433	156	17
Price	799	1	15,753	1,538	--	5,140	--	10,288	10,025	1,066	--	279
Rusk	974	5	6,259	502	--	3,171	--	4,169	3,153	3,105	405	209
Sawyer	1,378	--	13,221	1,838	--	814	--	7,438	4,205	939	105	137
Taylor	907	6	4,646	772	--	2,783	--	11,101	16,104	260	--	67
Washburn	2	--	3,541	115	--	306	--	1,071	1,574	86	19	124
Total	5,164	39	90,233	7,949	--	17,000	--	51,159	45,789	8,111	1,177	1,196
Central												
Adams	7	--	60	--	--	--	--	46	97	1,319	481	8
Chippewa	389	--	3,538	513	--	831	--	1,955	1,780	1,148	394	61
Clark	155	5	3,035	598	--	3,125	--	2,110	3,620	3,494	1,886	134
Eau Claire	5	16	188	33	--	158	--	222	331	426	117	38
Jackson	--	--	582	--	--	41	--	--	1,173	2,950	901	80
Juneau	--	--	477	--	--	105	--	261	399	4,603	1,483	28
Marathon	281	4	932	647	--	7,072	--	3,745	3,485	748	156	52
Marquette	--	--	418	242	--	53	--	265	270	965	412	1
Monroe	--	--	201	25	--	22	--	106	136	293	99	20
Portage	4	--	254	104	--	37	--	274	184	1,636	850	1
Waupaca	48	70	190	37	--	346	--	508	767	503	182	26
Waushara	--	--	21	--	--	--	--	--	18	266	127	--
Wood	1	--	328	52	--	57	--	323	937	2,342	1,265	--
Total	890	95	10,224	2,251	--	11,847	--	9,815	13,197	20,693	8,353	449
Southwestern												
Buffalo	--	--	5	--	--	1	--	--	1	22	6	3
Dunn	63	--	129	8	--	42	--	133	124	388	206	17
Grant	--	--	--	--	--	--	--	--	--	--	--	--
Iowa	--	--	--	--	--	--	--	--	--	--	--	--
La Crosse	--	--	--	--	--	--	--	--	--	--	--	--
Pepin	--	--	2	--	--	2	--	4	15	--	--	1
Pierce	--	--	--	--	--	4	--	19	--	11	--	--
Richland	--	--	--	--	--	--	--	--	--	--	--	--
St. Croix	--	--	--	--	--	--	--	--	--	--	--	--
Sauk	--	--	--	--	--	--	--	--	--	--	--	--
Trempealeau	--	--	31	--	--	1	--	--	2	21	21	3
Total	63	--	167	8	--	50	--	156	142	442	233	24
Southeastern												
Brown	--	--	--	--	--	--	--	--	--	--	--	--
Calumet	--	--	--	--	--	--	--	--	--	--	--	--
Columbia	--	--	104	21	--	--	--	121	104	557	291	--
Door	--	--	--	--	--	--	--	--	--	--	--	--
Fond du Lac	--	--	--	--	--	--	--	--	--	--	--	--
Green Lake	--	--	--	--	--	--	--	--	--	--	--	--
Kewaunee	--	--	--	--	--	--	--	--	--	--	--	--
Outagamie	--	2	--	--	--	6	--	2	7	1	--	--
Ozaukee	--	--	--	--	--	--	--	--	--	--	--	--
Rock	--	--	--	--	--	--	--	--	--	--	--	--
Sheboygan	--	--	--	--	--	--	--	--	--	--	--	--
Walworth	--	--	--	--	--	--	--	--	--	--	--	--
Waukesha	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	2	104	21	--	6	--	123	111	558	291	--
State total	12,583	1,981	170,642	22,465	--	50,972	--	155,109	109,378	34,879	11,290	6,515

[1] Includes only those counties that supplied pulpwood in 1985.

Table 10.--Central States pulpwood production by State and destination, 1981-1985

(In thousand standard cords, unpeeled)

	Illinois			Indiana			Iowa			Missouri		
		Destination			Destination			Destination			Destination	
Year	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States
1981	100	43	57	185	68	117	32	26	6	111	44	67
1982	76	19	57	185	51	134	14	10	4	81	23	58
1983	91	31	60	226	62	164	16	11	5	114	39	75
1984	82	29	53	206	56	150	20	14	6	86	32	54
1985	68	25	43	224	68	156	19	13	6	91	27	64

Table 11.--Trends in receipts of roundwood and residue as pulpwood, Central States, 1981-1985

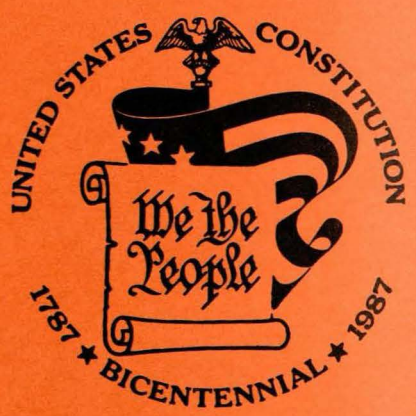
(In thousand standard cords, unpeeled)

Type of material and area	1981	1982	1983	1984	1985
Roundwood					
Illinois	19	--	--	--	--
Indiana, Iowa, Missouri	60	40	69	62	63
Total	79	40	69	62	63
Residue					
Illinois	3	--	--	--	--
Indiana, Iowa, Missouri	112	63	79	70	73
Total	115	63	79	70	73
All material	194	103	148	132	136

Blyth, James E.; Smith, W. Brad.
1987. Pulpwood production in the North Central Region by County, 1985. Resour. Bull. NC-101. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 26 p.

Discusses 1985 production and receipts and recent production for other years in the Lake and Central States. Shows Michigan, Minnesota, and Wisconsin production by species for each county and compares production by Forest Survey Unit with that of previous years. Presents 1985 production and receipt data for Illinois, Indiana, Iowa, and Missouri, and shows four production classes by county.

KEY WORDS: Roundwood, residue, receipts, Lake States, Central States.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